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ABSTRACT

Each of 91 kindergarten and 79 second grade children attending public and parochial schools were assessed to explore possible relationships between students' performance increments and decrements on experimenter-manipulated puzzle games and their causal attribution for performance, locus of control, and self-concept. The first research question concerned the self-serving bias aspect of attribution theory: Does performance decrement lead to external attribution? The second research question addressed locus of control and attribution: Does internal or external control affect attribution and is the effect modified by performance increment or decrement? The third research question concerned effects of self-concept on attribution and whether on not the performance variation would bear on the relationship between self-concept and attribution. Two self-concept measures were obtained for each subject: the students' teachers completed the Behavioral Academic Self-Esteem Scale (BASE), and students completed the Martinek-Zaichkowsky Self-Concept Scale (MZSCS). The locus of control measure was the Stanford Preschool Internal-External Scale (SPIES). Generally, attribution showed minimal effects of self-concept, and no effect of either locus of control or self-serving bias. Attributions were more likely to be external than internal. This incidental effect was more pronounced for kindergarteners than for second graders. The preference for externality was unrelated to sex or performance variation conditions. (RH)

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Some Effects Among Self-Concept, Locus of Control, and Attribution in Young Children

John L. Burns, Beverly Boals, Suzanne M. Throesch

The primary bases for interest and research on attribution of causality have been provided by Heider (1958), Weiner, et al. (1971), and Weiner (1983). Closely related, and possibly a subset of such research, has been the construct of locus of control (Rotter, 1966; Crandall, Katkowsky, & Crandall, 1965; Lefcourt, 1971; Mischel, Zeiss, & Zeiss, 1974, eg.). The significance of self-concept on educational, achievement-oriented activities has long been popularly accepted. The more empirically oriented consideration of the impact of self-concept has been reviewed by Wylie (1961, 1979) and Purkey (1970).

Attribution has been among the psychological events most actively researched for some years. Subjects have most frequently been adults -- including the ubiquitous college sophomore. Some studies have focused on younger persons; these have focused not so much on dimensions of attribution as on bases for attribution -- contiguity (eg. Olum, 1956), covariation (Siegler & Liebert, 1974; Mendelson & Schultz, 1976) and distinctiveness (DiVitto & McArthur, 1978). The major dimensions of attribution hypothesized by Weiner (1979) have less frequently been studied among younger subjects; a recent exception is noted among British youngsters

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(Nesdale & Pope, 1985). Also, a paucity of research is noted on developmental changes in dimensions of attribution if such changes do, in fact, occur at younger ages.

Achievement related behavior is widely held to be a function of causal attribution for success and failure. Age differences are of interest in that older (children) are assumed more accurate and accuracy should be necessary to mediate effects of (past) performance on attribution. Younger persons may be less accurate and this should make younger children's attribution less predictable from achievement. This line of reasoning was reviewed by Nicholls (1978).

Methodological differences have been noted among attribution studies. One such aspect is that of self-attribution vs. attribution about hypothetical others (Marsh, 1984). These have been considered the "dispositional" -- "situational" approaches (respectively) and most research has focused on the latter procedure. The most likely task, then, is for the subject to make an attribution with respect to some performance by a hypothetical other person. In other studies, subjects have been asked to make self-attributions. Frequently, though, a criticism is raised that the experimental task may be highly structured and artificial, hence providing a poor basis for generalization of results. The distinction between "structured and artificial" and naturalistic tasks may be less than perfectly clear and may be arbitrary. The implications of these methodological variations is that research

is needed on self-attributions in settings that approach the naturalistic and commonly performed activities.

The literature on attribution theory provides a basis for predicting attribution. The general case has been labelled the "fundamented attribution error," a tendency to over-attribute to internal causes. In settings involving "dispositions attribution" or attribution about one's own behavior (Marsh, 1984), the differentiated case would be the "self-serving bias" or "hedonic bias" (Heider, 1958). This would involve attribution of personal success to internal causes and failure to external causes. This latter instance would reflect an attempt to protect or enhance self-esteem.

A basic dimension of attribution (Weiner, et al., 1971; Weiner, 1979) is that of internality-externality. This is one of the dimensions described as most appropriate in achievement-related setting. The internal-external dimension should have some logical relationship to locus of control (Crandall, Katkowsky, & Crandall, 1965; Rotter, 1966; Mischel, Zeiss & Zeiss 1974). Locus of control measures should correspond to internal-external attributions. That is internal locus of control should lead to internal attributions and external locus of control should lead to external attributions. Indeed, Brown, et al. (1984) found that internally controlled persons took responsibility for positive events. Frieze and Snyder (1980) found that external causes were used more for failure than of success. The consistency of the locus of control--attribution relationship has been called into

question by Marsh, et al. (1984) whose results argue against the adequacy of the internal-external dimension; also their findings based on a situational approach differed from those resulting from a dispositional approach.

In educational settings the importance of self-concept (self-esteem, etc.) has been recognized as significantly impacting a variety of behaviors [see reviews by Wylie (1961; 1979) and Purkey (1970)]. The influence of self-concept has been hypothesized to affect attribution and to interact with locus of control. Johnson (1981) found that children with low self-concept made internal attributions for failure and external attributions for success. Nicholls (1978) found that children with high self-concepts made internal attributions for success and that attributions made for failure were external or unstable internal. Marsh (1984) found that students who attribute success to ability and effort (internal) and who do not make internal attributions for failure had better academic self-concepts. Brown, et al. (1984) were unable to draw conclusions on the interrelationships between locus of control and self-concept and suggested that future research focus on this. A preponderance of research appears consistent in that, particularly in successful performance, internal attributions are associated with higher self-concept. This reflects the "halo scheme" (Kun, 1977) that all good things go together.

Young children are sometimes describes as "egocentric." Whether such egocentrism stems from a higher self-concept or from a self-serving bias is unclear. The nature of attributions made could lend some clarification. That is, if egocentric functioning is unrelated to self-concept, attributions should be unrelated to self-concept; if egocentric functioning is dependent on self-concept development (or lack of it), attritions should be related to self-concept.

What, then, are the effects among locus of control, self-concept and attributions among youngsters. Do differences show between kindergarten and second-grade children? In that so many of the achievement-related studies include a difference in performance levels, what are differences between children who show performance increments (PI) and performance decrements (PD)? Using kindergarten and second-grade children, we did both within group (within grade) and between groups (between grades) comparisons. The latter comparisons were considered as a cross-sectional approach to considering development with respect to attribution, locus of control, and self-concept.

The research question addressed (which may be translated into a variety of null hypotheses) were in these sets:

1. Attribution theory, self-serving bias approach: does performance-increment lead to internal attribution and performance decrement lead to external attribution?

2. Locus of control approach: does internal control lead to internal attribution and external control to external attribution? are these affected by performances increment and performance decrement?
3. Self-concept approach: is self-concept systematically predictive of attribution? Is such prediction affected by performance increment and performance decrement.

The researchers note that difficulties inhere with respect to the measures which may be used. For example, how does one measure self-concept, locus of control, etc. for 5-year-olds? (On self-concept measures, see Hughes (1984).) We used measures with some history of use and some reliability and validity data. While they may be less than optimally desirable, we used others' measures, thus focusing on issues other than measurement ones. Clearly, measures appropriate for children are problematic. Further, the desirable psychometrics properties of instruments seem inversely related to the age of respondents during the formative years (Anastasti, 1961, Chap. 11).

Method

Subjects

Subjects were 91 kindergarten students and 79 second grade students for whom parental permission had been obtained for the students' participation. The students were drawn from the kindergarten and second grade populations in one of four small-town public elementary school and from the respective grades in a private parochial school in the same town.

Materials

Two self-concept measures were obtained for each participant. The students' teachers completed the Behavioral Academic Self-Esteem Scale (BASE) (Coopersmith & Gilbert, 1982). The BASE yields a total self-esteem score along with five subscales: Student Initiative (SI), Social Attention (SN), Success/Failure (SF), Social Attraction (SR), and Self-Confidence (SC). The students, themselves, also completed a self-concept measure, the Martinek-Zaichkowsky Self-Concept Scale (MZSCS) (Martinek & Zaichkowsky, 1977). This scale was designed primarily to measure the global self-concept of young children. The scale is non-verbal requiring little or no reading ability. The MZSCS also maybe scored for factor, or subscale, scores: Satisfaction and Happiness (MZSH); Home and Family Relationships and Circumstances (MZHFR); Ability in Games, Recreation, and Sports (MZGRS); Behavioral, Personal, and Social Characteristics in School (MZBPS); and Personality Traits and Emotional Tendencies (MZPTET).

The locus of control measure was the Stanford Preschool Internal-External Scale (SPIES) (Mischel, Zeiss, & Zeiss, 1974). The SPIES yields an interval score ranging from 0 to 14 with higher scores reflecting more internality. Subjects were also categorized as internal or external based on a score of eight or higher as internal (and lower scores as external). The SPIES is composed of items reflecting control over negative events (I-) and

items reflecting control over positive events (I+). Hence, I+ (SPIESP) and I- (SPIESN) scores may also be determined.

Materials used in establishing the PI and PD condition were two essentially equivalent sets of puzzle tasks for each grade level. For the kindergarten children form board jig-saw puzzles were used and for second-grade children, anagram type word puzzles were used.

Procedure

Data from the students were collected at the schools by three female experimenters (the junior author and two graduate assistants). The teachers were provided the BASE for each participating student.

Each student was met at the respective testing room by one of the three experimenters and the interaction proceeded as follows. The student was asked if he or she would play some puzzle games. With one exception (for whom no data was obtained) each student seemed eager to participate. The experimenter thus engaged the student in the appropriate puzzle task. The PI or PD manipulation was arranged by allowing the student two minutes to work with a set of puzzles; the student's progress was noted and mentioned to her or him. In the PI condition, the student was presented a seconds set of puzzles and allowed to work with it until she or he had done more of them than in the first set. Conversely, in the PD condition, the student was given a second set of puzzles and the experimenter stopped her or him before as much had been completed as in the first set. Casual questioning as to whether

the student thought she or he had done better or not indicated that the performance manipulation was effective. In fact, some students spontaneously commented on the performance in a way that reflected the manipulation.

Following the puzzle task, the experimenter obtained the key attribution measure by asking the student why she or he thought the performance has been as it was (to what do you attribute your performance in words the child could understand). These open-end question responses were recorded verbatim. These responses were later given to a set of five judges who made independent judgments of whether the attribution statement reflected internal or external control. Interrater reliability exceeded .90. Hence, each student was provided a categorical attribution measures of her or his PI or PD activities.

The experimenter preceded to obtain the SPIES and MZSCS data from each student. Following the questionnaire completion, each student was debriefed. Particularly in the case of the PD group, students were encouraged to work with the appropriate puzzles until they were sure they could complete them satisfactorily. Most PD student did work with the puzzles briefly. The puzzles were not complex and students in both PD and PI conditions typically indicated their competency. None showed any overt discomfort with the procedure.

Results

Preliminary analyses were accomplished to identify gender differences which might have appeared for any of the variables. For all subjects combined (both kindergarten and second grade students), no variable yielded a significant gender difference. By grade level, minimal gender differences appeared and these are as follows:

Kindergarten: MZGRS - males (6.31) > females (5.57), p.=02

Second Grade: SPIES - males (7.68) > females (6.54), p.=02

SPIESN - males (4.3) > females (3.78), p.=01

MZBPS - females (4.87) > males (4.55), p.=04

These gender differences were assessed in the appropriate analyses; otherwise, the data were collapsed across genders.

The first research question concerned the self-serving bias aspect of attribution theory; viz. does performance increment lead to internal attribution and, conversely, does performance decrement lead to external attribution? Neither grade level individually nor both levels combined showed an effect of the performance variation on attribution. Hence, the self-serving bias received no support in this instance.

The second research question addressed locus of control and attribution; does internal or external control affect attribution and is the effect modified by performance increment or performance decrement? As noted above the SPIES may be scored to yield three interval scale scores (total, control over negative events, and control over positive events); also scores may be dichotomized to

reflect internal or external control. Neither of the internal scale scores nor the categorical measure was predictive of attribution for either grade level or for both collectively. While not affecting attribution, some statistically significant findings on the SPIES did appear. Kindergarten subjects were more likely externally controlled than internally controlled (X^2 = 34.46, $p<.001$). A grade by gender interaction effect showed that internality was higher for second grade males than for second grade females and higher then that for either gender at kindergarten level. Also, a main effect for grade appeared with second grades (M = 7.11) being less external than kindergarten subjects (M = 5.28, $p<.02$.

The third research question concerned effects of self-concept on attribution and whether or not the performance variation would bear on the relationship between self-concept and attribution. The BASE data yielded no main effect on attribution. A significant ($p=.02$) grade by gender interaction effect was noted. Contrary to expectation, though, this interaction suggested that kindergarten males who had higher self-concepts made external attributions while second-grade females who had lower self-concepts made internal attributions. The BASE data yielded a grade main effect with kindergarten students (M = 61.09) having higher self-concepts than second grade students (M = 56.28), $F(1,154) = 21.29$, $p<.001$. Also noted on the BASE data was a performance variation condition by grade by gender interaction. The suggestion here was that performance increments for second

grade males were associated with lower self-concept and performance increments for kindergarten males were associated with higher self-concepts.

The Martinek-Zaichkowsky self-report self-concept measure yielded little which was predictive of attribution. No significant total-score main effect on attribution was noted. A performance variation condition by sex interaction trend ($p = .07$) was noted. The performance decrement condition for females seemed to be more predictive of low self-concept while the effect on males was less pronounced. While not affecting attribution, the MZ did yield a grade by gender interaction; while females showed nonsignificant between grade scores, kindergarten males were significantly higher in self-concept than were second grade males. Further, a performance variation condition main effect was found; performance increment subjects ($M = 22.86$) scored higher than performance decrement subjects ($M = 21.13$), $F(1,154) = 9.29$, $p=.003$.

Consistent with expectation, two of the MZ subscales showed significant effects on attribution. The MZGRS yielded a significant main effect for second graders. Those who made internal attributions ($M = 5.79$) scored higher than those who made external attribution ($M = 5.04$), $F(1,77) = 4.87$, $p=.04$. Also, a similar significant main effect was found for all students combined. Those who made internal attributions ($M = 5.93$) scored higher than those who made external attributions ($M = 5.42$), $F(1,168) = 5.42$, $p=.04$. The MZPTET yielded a significant

attribution by performance variation condition interaction forsecond graders (only). The suggestion here was that students in the performance decrement condition and making external attributions had the lowest MZPTET scores and students in the performance increment condition and making internal attributions had the highest MZPTET scores.

While attribution showed no effect of locus of control or of the self-serving bias and minimal effects of self-concepts, the following will summarize the incidental effects on attribution. Attribution were more likely to be external than internal, and this was more pronounced for kindergartners than for second graders. This externality preference, however, was unrelated to sex or to performance variation condition.

The bulk of the statistically significant findings in the data analysis had to do with the PI-PD conditions and their relationships to dimension of self-concepts. Analysis of the BASE data -- teacher-report of student's self-concepts -- produced some unexpected findings. For second graders, teacher-report of self-concept showed that PD students ($M = 58.31$) had higher self-concept than PI students ($M = 54.30$), $F(1,77) = 3.69$, $p=.058$. For all students, a significant PI-PD condition by grade by gender interaction was found in the BASE. This interaction reflected high self-concept for kindergarten males who were in the PI condition and low self-concept for second-grade males in the PI condition; self-concepts tended to equalize for all students in the PD condition. The SR subscale of the BASE yielded a

significant difference for second grade students: PI (M = 9.53), PD (M = 10.85) F(1,78) = 7.43, p=.01. In these analyses of the BASE, higher self-concept tended to accompany PD, although the procedure negated any causal relationship.

The MZ total score as well as several of the its subscales yielded significant differences based on the PI-PD variation. All the difference were in the direction of PI being associated with higher self-concept, as would be predicted. The design allowed for such effects of the PI-PD variations in that the student responded to the MZ following the puzzle-tasks variations. The MZ total score differed significantly for each grade level individually and for all students combined: All, PI (M = 22.86), PD (M = 21.13), F(1,168) = 9.43, p=.002; Kindergarten, PI (M = 23.3), PD (M = 21.7), F(1,89) = 3.78, p=.055; Second Grade, PI (M = 22.35), PD (M = 20.49), F(1,77) = 6.17, p=.015.

The MZ subscales which yielded significant differences for the various groups are as follows (all in the direction of PI>PD): MZSH - kindergarten and all students combined; MZHFR - second grade and all students combined; MZGRS - second grade and all students combined; MZPTET - second grade and all students combined.

Discussion

While some significant effects of the PI-PD manipulation were noted, the lack of significant antecedents of the subjects' attribution for performance is puzzling. Effects of PI-PD on the BASE measure of self-concept would have been difficult to predict

and such prediction was not a part of the research design; the BASE (teacher-report, at her convenience) and the PI-PD manipulation (subjects being randomly assigned with one constraint) would yield chance causal effects. The BASE data alone reflect a "kindergarten halo" in that the younger students were rated more positively.

The MZ and its subscales, as noted above, showed the clearest effect of the PI-PD manipulation. PI showed an enhancing effect on some of the nuances of students' self-report of self-concept. These effects were more marked for the older, second grade students. This may reflect a more integrated self-concept (and hence more salient) for the second grade students. For both self-concept measures, BASE and MZ, the scores tended toward less variance for second grade students. The general developmental trend, global to differentiation to integration, may be reflected in this.

One pilot project for this research (Burns, Boals, & Throesch, 1985) had strongly suggested a PI-PD effect on attribution based on the self-serving bias hypothesis. This earlier pilot clearly pointed toward PI experiences leading to internal attribution. This present research did not show any effect on attribution of the PI-PD condition. One basis for the lack of difference could be that the variation itself (two puzzle tasks, the latter task being systematically varied by the investigator) may have been confusing to the youngsters. They may have considered "why" in terms of the change, rather than the

"why" of the later puzzle task performance. The subjects did, though, give verbal indications that they were aware that they did better or not as well, respectively, in the puzzles.

The lack of self-concept effects in attribution may reflect the lack of salience of self-concept with respect to attribution for young children. The data indicated a trend toward decreasing variance in measure of self-concept with age. For both age groups, though, self-concept seemed to measure higher. The "halo effect" (Kun, 1977) or the "frog-pond effect" (Bachman & O'Malley, 1986) may account for some of the suspected inflation of self-concept scores. Another possibility is that the direction of causal effect may not be self-concept to attribution but attribution to self-concept. This hypothesis would be consistent with Bachman & O'Malley's (1986) findings with respect to the causal direction regarding achievement and self-concept.

Considering the self-concept measures above, the present research confirmed the low relationship between teacher-report and self-report measures of self-concept (Martinek & Zaichkowsky, 1977). This low relationship points to the measurement problems inherent involving "personality characteristics" in younger persons. In our perspective the gains in one type measure over another may be offset by difficulties also in the one. The BASE clearly gives measures based on inferences made by a second party. The MZ scores seem highly susceptible to a social-disability effect; even the younger children occasionally

verbalized something about the "best" -- hence, "right" -- response.

Further research with regard to self-concept could focus on development -- the integration, decreasing variance effects which might be expected. The issues of direction of causality effects on self-concept, while not new, might be the topics of elaboration.

If in fact attribution is subject to proximal effect of events like performance variation, a design to take this into account could be used. For example, a four-group rather than two-group approach could be effected. The case may be that the young child does not process both immediate change in performance and whether not it is high or low. Further, the case may be that attribution is not highly consistent in youngsters. Consistency in attribution may be a function of simplicity of the setting.

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